

Activity of inflammasomes in lung cancer cells

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Abstract

Statement of the Problem: According to the recent experimental data the activation of inflammasomes is associated with inflammation process and contributes to tumor growth and progression. Therefore inflammasomes are perspective molecular targets for anti-inflammatory therapy which are able to increase the efficiency of existing schemes of cancer treatment. In this connection the purpose of this study is to estimate the expression and localization of ASC and Caspase-1 in tumor and stromal (microenvironmental) cells for assessment of the inflammasomes activation status in non-small cells lung cancer (NSCLC). Methodology: Patients with first-time diagnosed NSCLC (55 to 70 years old) were included in the study. Expression and localization inflammasomes components (ASC and Caspase-1) in tumor and stromal cells were assessed by four-color confocal microscopy (LSM780NLO, Carl Zeiss, Germany) using of anti-CK7, anti-TMS-1 (anti-ASC) and anti-Caspase-1 antibodies. Findings: The research showed that 67% of patients had co-expression and co-localization of ASC-1 and Caspase-1 in tumors, that is an evidence of the activation of inflammasomes. Furthermore in 17% of cases active inflammasomes were detected only in tumor cells, in 17% of cases – only in stromal cells, in 33% cases – both in tumor and stromal cells. In 33% cases the components of inflammasomes neither in tumor nor in stromal cells were absent. The quantity of the tumor cells with activated inflammasomes was 2,15 (0-4,84) %, stromal cells – 2,28 (0-5,97) %. Thus, inflammasomes are able to become active not only in immune microenvironmental cells but also in epithelial tumor cells. This research was supported by grant of the President of the Russian Federation MD-273.2017.7.

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Biography

Olga Saveleva has completed her PhD at the age of 25 years from Siberian State Medical University. She is the Leading Researcher of general and molecular pathology Department of Cancer Research Institute of Tomsk National Research Medical Center and Leading Researcher of the Laboratory for Translational Cell and Molecular Biomedicine of Tomsk State University. Her current research program is focused on the

identification of extracellular and intracellular factors that control inflammation, identification of blood and tumor biomarkers for pro-inflammatory status, development of an algorithm for predicting the tumor metastasis and recurrence and design of individualized therapeutic approaches. She is author and co-author on over 50 scientific publications.